REMARKS

Claims 33-55 are pending in the present application. Claims 2-32 have been cancelled. After entry of Claims 33-55 presented herein, Claim 1 may be cancelled by Examiner's Amendment. Alternatively, Applicants will file a supplemental preliminary amendment cancelling Claim 1. (Claim 1 was left in the application so that there would be no point in time when the present application contained no claims.) As explained in detail below, new Claims 33-55 have been copied from an issued U.S. patent. The title of the application has been amended to make it consistent with the new claims.

I. Background to the Present Request

The present application is a continuation of Application Serial No. 09/199,539, filed November 25, 1998, which itself is a continuation of Application Serial No. 08/696,203, filed August 13, 1996.

The parent '539 Application has been allowed. *See*, the Notice of Allowability and Notice of Allowance mailed June 15, 2000. Payment of the issue fee is due by September 15, 2000. In lieu of paying the issue fee in the parent '539 Application, Applicant has filed the present continuation application and Preliminary Amendment and Request for Declaration of an Interference Under 37 C.F.R. § 1.607. In the Preliminary Amendment and Rule 607 request, Applicant has added new Claims 33-55, which interfere with the claims of a U.S. patent.

II. The Request for Declaration of an Interference Under 37 C.F.R. § 1.607(a)

A. 37 C.F.R. § 1.607(a)(1) - Identity of the Intefering Patent

Applicant hereby notifies the PTO that they have presented Claims 33-55 in the present application for purposes of requesting an interference with U.S. Patent No. 6,027,766 to Greenberg *et al.* ("the '766 Patent"). A copy of the '766 Patent is enclosed as Attachment A.

Newly presented Claims 33-55 correspond or substantially correspond to Claims 1-27 of the '766 Patent which issued February 22, 2000.

B. 37 C.F.R. § 1.607(a)(2) - Presentation of a Proposed Count

The interfering subject matter between the present application and the '766 Patent relates to depositing titanium oxide having a photocatalytically-activated self-cleaning property on a glass substrate.

Taking the foregoing into consideration, Applicant submits that an alternative claim format for the count is appropriate. *Orikasa v. Oonishi,* 10 USPQ2d 1996 (Comm'r Pat. & Trademarks 1989).

Attachment B hereto contains a proposed Count which represents the independent claims of both the present Application (after cancellation of Claim 1) and the '766 Patent, *i.e.*, the

independent claims reciting the method for manufacturing titanium dioxide coated substrates, the titanium dioxide coating being a photocatalytically-activated self-cleaning surface.

C. 37 C.F.R. § 1.607(a)(3) - Identification of claims in the '766 Patent Corresponding to the Proposed Count

Applicant identifies Claims 1-27 of the '766 Patent as corresponding to the proposed Count. Independent Claims 1, 4, 8, 14, 15 and 27 of the '766 Patent correspond exactly to alternatives of the proposed Count, and none of dependent Claims 2-3, 5-7, 9-13 and 16-26 define a separately patentable invention.

D. 37 C.F.R. §1.607(a)(4) - Presentation of Claims Corresponding to the Proposed Count

Applicant has presented above new Claims 33-55 which correspond to the proposed Count.

For each of Applicant's claims which does not correspond exactly to the proposed Count, Applicant explains below why each such claim corresponds to the proposed Count. 37 C.F.R. § 1.607(a)(4).

Independent Claim 33 corresponds exactly to one alternative of the proposed count. Claim 33 recites a method including the steps of manufacturing a continuous float glass ribbon, positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon

and directing titanium tetrachloride in a carrier gas stream through the chemical vapor deposition apparatus over the surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon.

Dependent Claim 34 further defines the process recited in independent Claim 33, reciting the further step of directing the metal oxide precursor directly onto the surface of the float ribbon without any intervening coating layers.

Independent Claim 35 corresponds exactly to one alternative of the proposed Count, and Claim 36 which depends from Claim 35 also recites the step of directing of the metal oxide precursor directly onto the surface of the float ribbon without any intervening coating layers.

Independent Claim 37 also corresponds exactly to one alternative of the proposed Count. Claims 38-49 depend from independent Claim 37. Claim 38 recites the further improvement of depositing a silica coating over a surface of the float ribbon and depositing the titanium dioxide coating over the silica coating. According to Claim 39, the titanium dioxide coating has a thickness up to 1300Å. According to dependent Claim 40, the silica is deposited over a surface of the float ribbon and the photocatalytically-activated self-cleaning coating is deposited over the silica layer, the thickness of the silica layer being about 339Å.

Claims 41 and 42 are independent claims which correspond exactly to alternatives of the proposed Count. Claims 43-46 depend from independent Claim 42. Dependent Claim 43 recites

the step of annealing the photocatalytically-activated self cleaning-coating. Dependent Claim 44 further specifies the article as being "selected from the group consisting of" glass and continuous glass float ribbon. Dependent Claim 45 specifies that the chemical vapor deposition process has a minimum temperature (of the article) to provide sufficient decomposition of the titanium precursor. Dependent Claim 46 specifies that the photocatalytically-activated self-cleaning coating has a thickness up to 1300Å to permit a sufficient portion of the coating to remain free of sodium ion poisoning and retain its activity.

Independent Claim 47 corresponds exactly to an alternative of the proposed Count.

Dependent Claim 48 depends from independent Claim 47 and further specifies the method claimed therein, reciting that the metal oxide precursor is directed onto the surface of the float ribbon without any intervening coating layers.

Independent Claim 49 also corresponds exactly to an alternative of the proposed Count. Dependent Claim 50 depends from independent Claim 49 and further specifies the method claimed therein, reciting that the metal oxide precursor is directed onto the surface of the float ribbon without any intervening coating layers.

Independent Claim 51 corresponds exactly to one alternative of the proposed Count.

Claims 52-54 depend either directly or indirectly from independent Claim 51. Dependent Claim 52 recites the additional feature of depositing a silica coating over a surface of the float ribbon and depositing the titanium dioxide coating over the silica coating. Dependent Claim 53

further recites the feature of the titanium dioxide coating having a thickness of up to 1300Å. Dependent Claim 54 recites the feature of the invention whereby the silica layer is deposited over the surface of the float ribbon and the photocatalytically-activated self-cleaning coating is deposited over the silica layer, the thickness of the silica layer being about 339Å.

Independent Claim 55 recites a method in accordance with the invention that corresponds exactly to one alternative of the proposed Count.

E. 37 C.F.R. § 1.607(a)(5)(i-ii) - Application of New Claims to the Disclosure

Applicant identifies below exemplary support in the present application for new Claims 42-64.

TABLE I

New Claims 33-55	Exemplary Support in the Specification
33. A method comprising the steps of:	
manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath,	"float glass installation" (Page 12, lines 3-4, hereinafter "12:3-4"); "continuous glass ribbon" (12:12)
positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the temperature range is from about 590° to 715°C (1100° to 1320°F);	"chemical vapor deposition process" (7:21); "gas distribution beams 64, 66 and 68" (14:1-2); "the temperature range at the point of application for the coating is usually about 1100°-1320°F/590°-715°C" (30:38)

directing titanium tetrachloride in a carrier gas stream through said chemical vapor deposition apparatus over a surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon.	"continuous chemical vapor deposition process for laying down... titanium oxide coatings onto a glass substrate at high deposition rates through the use of the corresponding metal tetrachloride (27:7-10); "annealing lehr 20" (12:11)
34. The method of claim 33 wherein the directing of the metal oxide precursor is directly onto the surface of the float ribbon without any intervening coating layers.	"the coating may be applied directly to the substrate" (32:7-8)
35. A method comprising the steps of: manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath; depositing a coating over at least one of the major surfaces by positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where temperature range is from about 590° to 715°C (1100° to 1320°F), directing a precursor gas mixture comprising titanium tetrachloride and an organic oxygen containing compound, wherein the concentration of the titanium tetrachloride is in the range from about 0.1-5.0% by volume, through said chemical vapor deposition coating apparatus over a surface of the float ribbon and annealing-the float ribbon in air to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon.	 "float glass installation" (12:3-4) "continuous glass ribbon" (12:12) "chemical vapor deposition process" (7:21); "gas distribution beams 64, 66 and 68" (14:1-2); "the temperature range at the point of application for the coating is usually about 1100°-1320°F/590°-715°C"(30:28) "precursor gas mixture containing the corresponding metal tetrachloride and an organic oxygen containing compound as a source of oxygen for formation of the metal oxide" (8:1-4); "the metal tetrachloride in the precursor gas mixture is at a concentration of about 0.1-5.0% by volume" (35:25-27)
36. The method of claim 35 wherein the directing of the metal oxide precursor is directly onto the surface of the float ribbon without any intervening coating	"the coating may be applied directly to the substrate" (32:7-8)

layers.	
37. In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising: depositing by chemical vapor deposition a crystalline phase of a photocatalytically-activated self-cleaning titanium dioxide coating over a surface of said float ribbon as the float ribbon is formed.	"well known float process" (12:9-10) "float glass installation" (page 12, line 3-4); "continuous glass ribbon" (12:12); "canal section 12" (12:6); "molten glass 14" (12:16)' "chemical vapor deposition process" (7:21); "production of... titanium oxide coatings deposited on the hot glass" (10:9-10); "on line during the glass production process" (10:30-31)
38. The method of claim 37 the improvement further comprising: depositing a silica coating over a surface of said float ribbon and depositing said titanium dioxide coating over said silica coating.	"the hot flat glass substrate has a silica coating thereon, and said... titanium oxide coating is deposited over the silica coating" (36:14-16)
39. The method of claim 38 wherein said titanium dioxide coating has a thickness up to 1300Å.	Examples 1-5
40. The method of claim 37, the improvement further comprising: depositing a silica layer over a surface of said float ribbon and depositing said photocatalytically-activated self-cleaning coating over said silica layer wherein the thickness of the silica layer is about 339Å.	"a silica coating was deposited on the glass substrate in the float bath section at a thickness of about 339Å" (21:11-13)
41. A method comprising the steps of: providing a glass article having at least one surface by a float manufacturing process; depositing a photocatalytically-activated self-cleaning coating over the surface of the article by chemical	 "float glass installation" (12:3-4); "continuous glass ribbon" (12:12) "production at high rates of titanium oxide... on hot flat glass substrates on

vapor deposition during the glass manufacturing process so that the coating has titanium dioxide in the crystalline phase and has a thickness up to 1300Å.	line during the glass production process" (10:28-31); Examples 1-5
42. A method comprising the steps of: providing an article of manufacture having at least one surface; depositing a silica layer by chemical vapor deposition having a thickness of about 339Å over said surface; and depositing a photocatalytically-activated self-cleaning coating by chemical vapor deposition over said silica layer whereupon said silica layer inhibits migration of sodium ions from the surface of said article to said photocatalytically-activated self-cleaning coating.	 "continuous glass ribbon" (12:12) "a silica coating was deposited on the glass substrate in the float bath section at a thickness of about 339Å" (21:11-13) "chemical vapor deposition process" (7:21); "production of... titanium oxide coatings deposited on the hot glass" (10:9-10); "on line during the glass production process" (10:30-31)
43. The method of claim 42 further comprising the step of annealing said photocatalytically-activated self-cleaning coating to increase a photocatalytic reaction rate of said photocatalytically-activated self-cleaning coating.	"annealing lehr 20" (12:11);
44. Method of claim 42 wherein the article is selected from the group consisting of: glass sheet and continuous glass float ribbon.	Examples 4 and 5 ("static glass substrate"); "continuous glass ribbon" (12:12)
45. Method of claim 42 wherein the chemical vapor deposition process has a minimum temperature of the article to provide sufficient decomposition of the titanium precursor.	"the temperature range at the point of application for the coating is usually about 1100°-1320°F/590°-715°C" (30:28-30)
46. Method of claim 42 wherein the photocatalytically-activated self-cleaning coating has a thickness up to 1300Å to permit a sufficient portion of the coating to remain free of sodium ion poisoning and retain its activity.	Examples 1-5 (TiO_2 coating thicknesses up to 1300Å)
47. A method comprising the steps of: manufacturing a continuous glass float ribbon having a	 "float glass installation" (Page 12, lines

first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath, positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where temperature range is from about 590° to 715°C (1100° to 1320°F); directing titanium tetrachloride in a carrier gas stream through said chemical vapor deposition apparatus over a surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1}.	3-4); "continuous glass ribbon" (12:12) "chemical vapor deposition process" (7:21); "gas distribution beams 64, 66 and 68" (14:1-2); "the temperature range at the point of application for the coating is usually about 1100°-1320°F/590°-715°C" (30:28) "continuous chemical vapor deposition process for laying down... titanium oxide coatings onto a glass substrate at high deposition rates through the use of the corresponding metal tetrachloride (27:7-10); "annealing lehr 20" (12:11)
48. The method of claim 47 wherein the directing of the metal oxide precursor is directly onto the surface of the float ribbon without any intervening coating layers.	"the coating may be applied directly to the substrate" (32:7-8)
49. A method comprising the steps of: manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath; depositing a coating over at least one of the major surfaces by positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where temperature range is from about 590° to 715°C (1100° to 1320°F),	 "float glass installation" (page 12, lines 3-4); "continuous glass ribbon" (12:12) "chemical vapor deposition process" (7:21); "gas distribution beams 64, 66 and 68" (14:1-2); the temperature range at the point of application for the coating is usually about 1100°-1320°F/590°-715°C" (30:28)

directing a precursor gas mixture comprising titanium tetrachloride and an organic oxygen containing compound, wherein the concentration of the titanium tetrachloride is in the range from about 0.1-5.0% by volume, through said chemical vapor deposition coating apparatus over a surface of the float ribbon and annealing-the float ribbon in air to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1}.	"precursor gas mixture containing the corresponding metal tetrachloride and an organic oxygen containing compound as a source of oxygen for formation of the metal oxide" (8:1-4); "the metal tetrachloride in the precursor gas mixture is at a concentration of about 0.1-5.0% by volume" (35:25-27)
50. The method of claim 49 wherein the directing of the metal oxide precursor is directly onto the surface of the float ribbon without any intervening coating layers.	"the coating may be applied directly to the substrate" (32:7-8)
51. In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising: depositing by chemical vapor deposition a crystalline phase of a photocatalytically-activated self-cleaning titanium dioxide coating over a surface of said float ribbon as the float ribbon is formed whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1}.	"float glass installation" (page 12, line 3-4); "continuous glass ribbon" (12:12); "canal section 12" (12:6); "molten glass 14" (12:16)' "well known gloat process" (12:9-10) "chemical vapor deposition process" (7:21); "production of... titanium oxide coatings deposited on the hot glass" (10:9-10); "on line during the glass production process" (10:30-31)
52. The method of claim 51 the improvement further comprising: depositing a silica coating over a surface	"the hot flat glass substrate has a silica coating thereon, and said... titanium

of said float ribbon and depositing said titanium dioxide coating over said silica coating.	oxide coating is deposited over the silica coating" (36:14-16)
53. The method of claim 52 wherein said titanium dioxide coating has a thickness up to 1300Å.	Examples 1-5 (TiO_2 coatings up to 1300 Å thick)
54. The method of claim 51, the improvement further comprising: depositing a silica layer over a surface of said float ribbon and depositing said photocatalytically-activated self-cleaning coating over said silica layer wherein the thickness of the silica layer is about 339Å.	"a silica coating was deposited on the glass substrate in the float bath section at a thickness of about 339Å" (21:11-13)
55. A method comprising the steps of: providing a glass article having at least one surface by a float manufacturing process; depositing a photocatalytically-activated self-cleaning coating over the surface of the article by chemical vapor deposition during the glass manufacturing process so that the coating has titanium dioxide in the crystalline phase and has a thickness up to 1300Å whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1}.	 "float glass installation" (12:3-4); "continuous glass ribbon" (12:12) "production at high rates of titanium oxide... on hot flat glass substrates on line during the glass production process" (10:28-31); Examples 1-5

F. 37 C.F.R. § 1.607(c) - Identification of Corresponding Claims in the '766 Patent

Applicant has presented claims which correspond exactly or substantially to claims of the '766 Patent. Applicant identifies below these claims as well as the number of the corresponding '766 Patent claims.

Newly Presented Claims	Corresponding claims of the '766 Patent
33 and 47	1
34 and 48	2
35 and 49	4
36 and 50	5
37 and 51	8
38 and 52	9
39 and 53	10
40 and 54	13
41 and 55	14
42	15
43	18
44	22
45	23
46	26

IV. Benefit Dates

In an interference between the present application and the '766 Patent, Applicant should be accorded benefit of the filing date of parent application Serial No. 09/199,539 filed November 25, 1998, as well as grandparent application Serial No. 08/696,203 filed August 13, 1996. The present application is a continuation under Rule 53(b) of the '539 Application which is a continuation of the '203 Application, and thus the present application contains the same disclosure as the '539 and '203 Applications.

The '766 Patent indicates it claims the benefit of U.S. Provisional Application Serial No. 60/040,566 filed March 14, 1997. *See*, col. 1, lines 7-8. The '766 Patent also indicates that "U.S. Provisional Application No. 60/040,565 filed March 14, 1997, and U.S. regular application

Serial No. 08/899,265 to Greenberg *et al.*, entitled Photocatalytically-Activated Self-Cleaning Appliances filed even date herewith are also related to the present application and are hereby incorporated by reference as commonly owned application." However, in the application for the '766 Patent, benefit was not claimed to the '565 Application under 35 U.S.C. § 119(e) nor was it claimed to the '265 Application under 35 U.S.C. § 120.

Hence, in an interference between the present application and the '766 Patent, Applicant (McCurdy *et al.*) should be designated senior party and Greenberg *et al.*, the patentee of the '766 Patent, should be junior party.

V. Designation of Claims

All of Claims 1-27 of the '766 Patent should be designated as corresponding to the proposed Count since they all define the same patentable invention as the proposed Count.

Similarly, all of the new claims added in the instant Preliminary Amendment and Rule 607 Request (Claims 33-55) should also been designated to corresponding to the proposed Count since they also all define the same patentable invention as the proposed Count.

Applicants filed a continuation application of the parent '539 Application on September 7, 2000, containing the allowed claims of the '539 parent application, *i.e.*, Claims 4, 6-7 and 32-41. *See*, the Notice of Allowance and Issue Fee Due and Notice of Allowability mailed June 15, 2000, in the '539 Application. Allowed Claims 4, 6-7 and 32-41 of the '539 Application all

recite a precursor gas mixture containing titanium tetrachloride and an ester, the ester having an alkyl group with a β hydrogen. As recognized in the Examiner's Statement of Reasons for Allowance included in the Notice of Allowability in the '539 Application, the prior art does not teach or suggest forming a titanium oxide coating using such an ester.

Applicant is concurrently filing an Information Disclosure Statement bringing to the Examiner's attention documents that may be relevant. In this Information Disclosure Statement, the Examiner's attention is also directed to the continuation application filed September 7, 2000. Applicant respectfully submits, however, that Claims 4, 6-7 and 32-41 now presented for examination in the continuation application filed September 7, 2000, should not be included in the interference and, specifically, should not be designated as corresponding to the attached proposed count. This is at least because of the feature of the invention recited in those claims relating to the ester having an alkyl group with a β hydrogen.

VI. Conclusion

Applicants have copied claims from the '766 Patent. Applicant requests that an interference be declared between the present application and the '766 Patent using the attached proposed count. All the claims of the '766 Patent and all of the claims of the instant application should be designated as corresponding to the proposed count.

Respectfully submitted,

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Dated: September 14, 2000

ATTACHMENT B - Proposed Count

[Claim 33 of the present application.]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath, positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the temperature is from about 590° to 715°C (1100° to 1320°F);

directing titanium tetrachloride in a carrier gas stream through said chemical vapor deposition apparatus over a surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon,

or

[Claim 35 of the present application.]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath;

depositing a coating over at least one of the major surfaces by positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the temperature is from about 590° to 715°C (1100° to

1320°F), directing a precursor gas mixture comprising titanium tetrachloride and an organic oxygen containing compound, wherein the concentration of the titanium tetrachloride is in the range from about 0.1-5.0% by volume, through said chemical vapor deposition coating apparatus over a surface of the float ribbon and annealing-the float ribbon in air to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon,

or

[Claim 37 of the present application.]

In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising:

depositing by chemical vapor deposition a crystalline phase of a photocatalytically-activated self-cleaning titanium dioxide coating over a surface of said float ribbon as the float ribbon is formed,

or

[Claim 41 of the present application.]

A method comprising the steps of:

providing a glass article having at least one surface by a float manufacturing process;

depositing a photocatalytically-activated self-cleaning coating over the surface of the article by chemical vapor deposition during the glass manufacturing process so that the coating has titanium dioxide in the crystalline phase and has a thickness up to 1300Å,

or

[Claim 42 of the present application.]

A method comprising the steps of:

providing an article of manufacture having at least one surface;

depositing a silica layer by chemical vapor deposition having a thickness of about 339Å over said surface; and

depositing a photocatalytically-activated self-cleaning coating by chemical vapor deposition over said silica layer whereupon said silica layer inhibits migration of sodium ions from the surface of said article to said photocatalytically-activated self-cleaning coating,

or

[Claim 47 of the present application.]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin

diffused therein characteristic of forming the glass float ribbon on a molten tin bath, positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the temperature is from about 590° to 715°C (1100° to 1320°F);

directing titanium tetrachloride in a carrier gas stream through said chemical vapor deposition apparatus over a surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about 2×10^{-3} cm^{-1} min^{-1},

or

[Claim 49 of the present application.]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath;

depositing a coating over at least one of the major surfaces by positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the temperature is from about 590° to 715°C (1100° to 1320°F), directing a precursor gas mixture comprising titanium tetrachloride and an organic oxygen containing compound, wherein the concentration of the titanium tetrachloride is in the

range from about 0.1-5.0% by volume, through said chemical vapor deposition coating apparatus over a surface of the float ribbon and annealing the float ribbon in air to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 51 of the present application.]

In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising:

depositing by chemical vapor deposition a crystalline phase of a photocatalytically-activated self-cleaning titanium dioxide coating over a surface of said float ribbon as the float ribbon is formed whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 55 of the present application.]

A method comprising the steps of:

providing a glass article having at least one surface by a float manufacturing process;

depositing a photocatalytically-activated self-cleaning coating over the surface of the article by chemical vapor deposition during the glass manufacturing process so that the coating has titanium dioxide in the crystalline phase and has a thickness up to 1300Å whereby said coating has a photocatalytically activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 1 of the '766 Patent.]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath,

positioning a chemical vapor deposition coating apparatus over the surface of the float ribbon at a paint in the manufacture of the float ribbon where the float ribbon has a temperature of at least about 400°C. (752°F.);

directing a metal oxide precursor selected from the group consisting of titanium tetrachloride, titanium tetraisopropoxide and titanium tetraethoxide in a carrier gas stream

through said chemical vapor deposition apparatus over a surface of the float ribbon and annealing the float ribbon to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon, whereby said coating has a photocatalytically-activated self-cleaning reaction rate of least about 2×10^{-3} cm^{-1} min^{-1},

or

[Claim 4 of the '766 Patent]

A method comprising the steps of:

manufacturing a continuous glass float ribbon having a first major surface and an opposite major surface defined as a second major surface, the first major surface having tin diffused therein characteristic of forming the glass float ribbon on a molten tin bath;

depositing a photocatalytically-activated self-cleaning coating over at least one of the major surfaces by positioning a spray pyrolysis coating apparatus over the surface of the float ribbon at a point in the manufacture of the float ribbon where the float ribbon has a temperature of at least about 400°. C. (752° F.), directing an aqueous suspension of titanyl acetylacetonate and wetting agent in an aqueous medium, wherein the concentration of the titanyl acetylacetonate is in the range from about 5 to about 40 weight percent of the aqueous suspension, through said spray pyrolysis coating apparatus over a surface of the float ribbon and annealing-the float ribbon in air to produce titanium dioxide in the crystalline phase as a photocatalytically-activated self-cleaning coating over the glass float ribbon, whereby said

coating has a photocatalytically-activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 8 of the '766 Patent]

In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising:

depositing by a process selected from the group consisting of spray pyrolysis and chemical vapor deposition a crystalline phase of a photocatalytically-activated self-cleaning coating over a surface of said float ribbon as the float ribbon is formed, whereby said coating has a photocatalytically-activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 14 of the '766 Patent.]

A method comprising the steps of:

providing a glass article having at least one surface by a float manufacturing process;

depositing a photocatalytically-activated self-cleaning coating over the surface of the article by a process selected from the group consisting of chemical vapor deposition and spray pyrolysis during the glass manufacturing process so that the coating has titanium dioxide in the crystalline phase and has a thickness in the range of at least 200Å and less than 1 micron whereby said coating has a photocatalytically-activated self-cleaning reaction rate of at least about $2x10^{-3}$ cm^{-1} min^{-1},

or

[Claim 15 of the '766 Patent.]

A method comprising the steps of:

providing an article of manufacture having at least one surface;

depositing a sodium ion diffusion barrier layer by a process selected from the group consisting of chemical vapor deposition, magnetron sputtered vacuum deposition (MSVD), and spray pyrolysis having a thickness of at least 100Å over said surface; and

depositing a photocatalytically-activated self-cleaning coating by a process selected from the group consisting of chemical vapor deposition, MSVD, and spray pyrolysis over said sodium ion diffusion barrier layer whereupon said sodium ion diffusion barrier layer inhibits migration of sodium ions from the surface of said article to said photocatalytically-activated self-cleaning coating,

or

[Claim 27 of the '766 Patent.]

In a method for forming a glass float ribbon wherein the method includes the steps of melting glass batch materials in a furnace; delivering the molten glass onto a bath of molten tin; pulling the molten glass across the tin bath whereupon the glass is sized and controllably cooled to form a dimensionally stable glass float ribbon; removing the float ribbon from the tin bath; moving the float ribbon by conveying roller through a lehr to anneal the float ribbon; moving the float ribbon to a cutting station on conveying rollers where the ribbon is cut into glass sheets, the improvement comprising:

depositing as the float ribbon is formed a photocatalytically-activated self-cleaning coating over said float ribbon which has a major surface and an opposing other major surface, wherein the major surface which contacted the tin bath has tin diffused therein so that the deposition is on the major surface having the diffused tin which forms a sodium ion barrier layer for the photocatalytically-activated self-cleaning coating.